

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-026512

(43)Date of publication of application : 27.01.1998

(51)Int.Cl.

G01B 11/00  
G01B 11/26  
G05D 3/12  
G06T 7/60

(21)Application number : 08-181838

(71)Applicant : NIKON CORP

(22)Date of filing : 11.07.1996

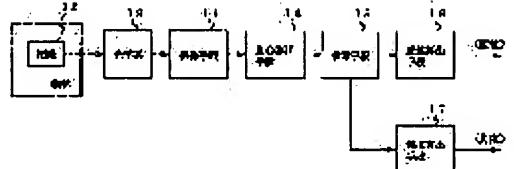
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## (54) MOVEMENT MEASURING APPARATUS

### (57)Abstract:

PROBLEM TO BE SOLVED: To obtain a movement measuring apparatus which is low-cost and whose high measuring accuracy is obtained surely by a method wherein, regarding a combination of two images, azimuth angles of the other with reference to one out of two contained centers of gravity are found individually, the difference between the azimuth angles is found and an angle at which an object is swiveled in a two-dimensional plane is found.



SOLUTION: Objects which are moved on a two-dimensional plane are arranged at intervals exceeding twice the product of the time equal to a reciprocal number whose photographing frequency is a minimum value. A retrieval means 15 retrieves two out of combinations of centers of gravity in which a relative distance is the product of the magnification of an optical system 13 multiplied by the product out of centers of gravity which are found individually by a center-of-gravity computing means 14. Regarding one out of the two retrieved combinations of the centers of gravity, the relative distance is divided by the magnification. The displacement of a displacement computing means 16 and the swiveling angle of an object which is found by an angle computing means 17 by finding the difference between azimuth angles of the other with reference to one out of the two centers of gravity contained individually are obtained with desired accuracy according to a combination of the magnification and the pitch of pixels.